



Sensors

Wireless Temperature Sensor Having No Electrical Connections

Robust, flexible, wireless temperature sensor based on SansEC

NASA Langley Research Center has developed a robust, wireless temperature sensor that does not require an electrical connection. The temperature sensor is built on NASA's SansEC sensor platform, which takes advantage of measuring dielectric changes. The temperature sensor is damage tolerant, wireless, flexible, precise, and inexpensive. One promising application is for tire temperature sensors.

BENEFITS

- ➔ Damage tolerant - As an open circuit sensor, it can sustain damage and still operate well
- ➔ Wireless - Because it is wireless, it can be used in places where wires are an impediment, like with rotating tires and turbines
- ➔ Flexible - Sensor is made of flexible materials that can be cut or scored to fit curved surfaces
- ➔ Wide Temperature Range - The temperature range detected is tunable based on the choice of dielectric materials
- ➔ Inexpensive - Compared to many other temperature sensors, it is inexpensive to make and easy to install

APPLICATIONS

- ➔ Aerospace
- ➔ Automotive
- ➔ Food Processing
- ➔ Medical

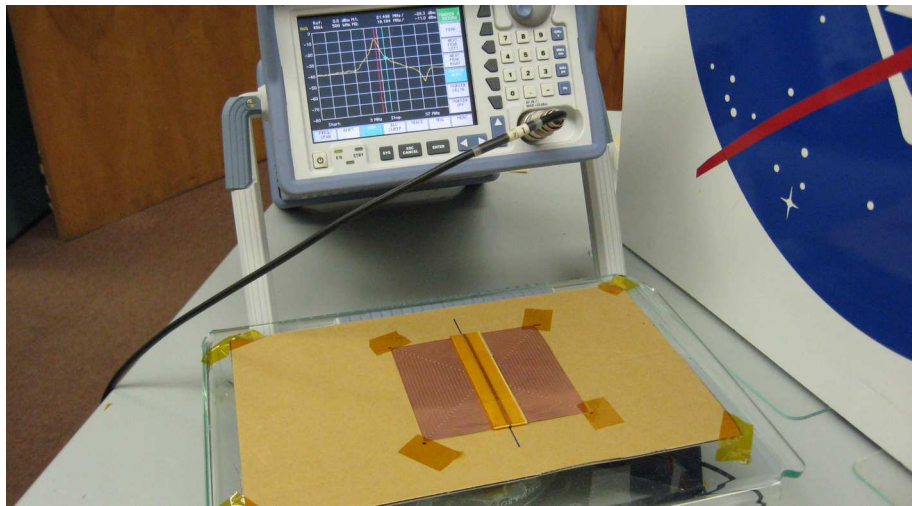
technology solution

NASA Technology Transfer Program

Bringing NASA Technology Down to Earth

THE TECHNOLOGY

This technology is a new sensor made up of dielectric materials tuned to accurately measure a variable and wide range of temperatures. The sensor is wireless and is powered by an external magnetic field. As the temperature changes, the dielectric material changes its signature magnetic response and the change is detected by a magnetic field response sensor. Applications for this technology are temperature sensors for non-conductive surfaces where the conditions or operations require a robust and wireless sensor.



SansEC sensor in lab

PUBLICATIONS

Patent No: 8,636,407

Patent Pending



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